DVD LAUNCH - BRIEFING PAPER

The following is an update related to DVD launch. This summary is also intended to cover issues which we believe may arise at your meeting with Frank Biondi of MCA.

1. DVD Window of Opportunity: Today's pre-recorded VHS tape is an inferior carrier to compete in a landscape of digital quality television, including movies delivered conveniently and virtually on demand. DVD is the only way that home video can compete by offering superior digital quality, promoting collectibility and ensuring packaged media profitability.

   - Competition: Due to the convergence of digitization, compression, direct broadcast satellite and advanced TV quality features, VHS faces stiff competition from on-line delivery.

   - On-Line Household Penetration: PPV, NVOD and VOD are expected to penetrate over 52 million households in the United States by year-end 2000.

   - Growth of VOD: Digital NVOD and VOD are expected to grow from 6.1 million households in 1996 to 27.2 million households by year-end 2000.

   - DVD Copy Protection: DVD is the best case delivery system for content providers today. On-line movie delivery systems only encrypt content *to* the home. DVD content is encrypted on discs and is further protected at analog and digital ports of players and computer systems *within* the home.

   - Sell-through Strategy: Sell-through priced DVD will be released by WHV concurrently with rental-priced VHS versions, with the intention of driving hardware and software sales by increasing store traffic.

2. Regional Coding: To protect worldwide theatrical release windows, the DVD format includes six regions so that discs can be programmed for playback in some or all of such regions. To ensure that playback occurs in appropriate regions, consumer electronics players will include regionally-coded ROM chips and computer systems will use operating system code.

3. DVD Technological Protection: There are currently at least six types of technological protection for copyrighted DVD content pending increased protection through legislation:

   - Encryption: Movies will be encrypted. Without decrypting, devices which simply copy the bitstream will not render it suitable for viewing.

   - Recording Cost: Even if the encryption were to be circumvented, in the digital domain there is currently no cost effective technology to record 4.5GB of information. For example, sufficient hard disc drive capacity would cost roughly $700.00.

   - Digital Output: Since there will be no digital output ports on first generation players, there should be no concern regarding 'using DVDs as digital masters from which would-be pirates could make perfect, digital copies.'

     There is not expected to be computer playback of DVDs until DVD ROM drives, Intel's MMX chip and appropriate software proliferates (i.e. until mid-'97 in high-end PCs only).

   - Analog Output: Analog protection systems, such as Macrovision, will protect analog outputs.

   - Digital Interfaces: Digital interfaces such as IEEE 1394 (aka 'Firewire') will be disabled until such time as secure transmission protocols are developed. These protocols will ensure that only secure devices can send or receive copy-protected content.

   - Analog to Digital Copying: Until there is very powerful desktop computing power and high quality MPEG 2 desktop compression, there is little exposure to casual analog to digital copying at the quality level of DVD. Such technology is forecasted to come within 2 years. Embedded data techniques are being evaluated to provide protection in this domain.

4. Protection for Transmission:

   - On-line Protection: Set-top box and network delivery providers need to be induced to provide transmission protection at least as good as DVD protection both *to* the home and *within* the home. Currently, there is no agreement to protect DSS, digital cable or telco video content once the signal is decrypted for TV display.

   - Continued Computer and CE Company Assistance: Withholding DVD availability while allowing DSS, digital cable or telco availability could seem to be acting in bad faith to the CE and computer industries since transmission in the home from network sources would remain without security while secure DVD delivery would be stalled. The computer companies can be enlisted as our allies to ensure that set-top box and network delivery representatives agree to provide digital and analog protection at least equivalent to that which the computer companies agreed to for DVD.

5. Legislation: The legislative initiative is on a fast track with the support of the motion picture, consumer electronics, computer and recording industries. The industries are aiming for introduction of a U.S. bill by January. The legislation will provide expanded protection for copyright owners who encrypt content.

6. Analog to Digital Copying: Regarding analog to digital copying, until there is very powerful desktop computing power (such as Intel's P7 CPU) and high quality MPEG 2 desktop compression, there is little exposure to casual analog to digital copying at the quality level of DVD. The advent of such technology is forecasted to come within 2 years.